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BY THE COMPTROLLER GENERAL

Report To The Congress

OF THE UNITED STATES

Billions Could Be Saved Through Waivers For Coastal Wastewater Treatment Plants

In many locations discharges of primary treated municipal wastes are not harmful to the marine environment. Giving waivers to coastal communities in these locations so they do not have to build Federally required secondary treatment facilities could save billions in Federal, State, and local construction and operation and maintenance dollars.

Hundreds of communities have been prevented from applying for these waivers because of legislative constraints and restrictive Environmental Protection Agency regulations.

The Congress and EPA should reopen, modify, and continue the waiver application process.

ORIGINAL

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MAY 22, 1981

COMPTROLLER GENERAL OF THE UNITED STATES
WASHINGTON D.C. 20548

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To the President of the Senate and the
Speaker of the House of Representatives

This report shows how billions of dollars in Federal, State, and local funds could be saved if coastal communities discharging primary municipal wastewaters into the marine environment did not have to build costly and unnecessary secondary treatment facilities. The report includes recommendations to the Congress and the Environmental Protection Agency to increase the administrative flexibility of the secondary treatment waiver application provision of the Clean Water Act of 1977.

We believe the report is particularly relevant to current discussions by the Congress and the executive branch for reducing Federal expenditures. The actions recommended in this report would substantially reduce the funds needed to construct secondary treatment facilities.

We are sending copies of the report to appropriate House and Senate committees; Representatives and Senators from States mentioned in this report; the Director, Office of Management and Budget; the Chairman, Council on Environmental Quality; and the Administrator, Environmental Protection Agency. We will also make copies available to interested organizations, as appropriate, and to others upon request.

Milton J. Socolar

Acting Comptroller General
of the United States

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COMPTROLLER GENERAL'S
REPORT TO THE CONGRESS

BILLIONS COULD BE SAVED THROUGH WAIVERS FOR COASTAL WASTEWATER TREATMENT PLANTS

D I G E S T

The Clean Water Act of 1977 allows the Environmental Protection Agency (EPA) to grant waivers to publicly owned wastewater treatment facilities so that they can discharge primary treated municipal waste into the marine environment when it can be shown that costly secondary treatment is not necessary. Many communities, however, have been discouraged from applying for secondary treatment waivers because of legislative constraints, such as limiting the application period to 270 days from the date of the act, and restrictive EPA administration of the waiver provision.

Scientists and others believe administrative changes could be made to allow for prompt waiver decisions when the risk to the environment is minimal. GAO believes that EPA and the Congress could protect the environment yet take advantage of this savings potential by reopening, modifying, and continuing the waiver process.

HUNDREDS OF COMMUNITIES DID NOT APPLY

Although 230 communities submitted preliminary applications, only 70 submitted final waiver applications to EPA. As of April 1, 1981, EPA had not made any waiver decisions.

GAO identified hundreds of additional communities, representing billions of dollars in possible construction savings, which did not apply for waivers. Even though some communities were not able to take advantage of the waivers, the substantial potential cost savings indicate that many communities should be given another opportunity to apply and be considered for waivers. (See p. 6.)

CED-81-68

Tear Sheet. Upon removal, the report cover date should be noted hereon.

LEGISLATIVE CONSTRAINTS AND EPA PROGRAM ADMINISTRATION HAVE DISCOURAGED APPLICANTS

The Clean Water Act limited some communities from obtaining a secondary treatment waiver. It provided limited time for communities to apply for waivers and it also provided that communities without existing marine outfalls (places where effluents are discharged into the sea) were ineligible for these waivers. (See p. 11.)

EPA's restrictive administration took several forms, including complex waiver regulations and extensive information requirements. The cost to obtain basic water quality data and prepare waiver applications made it very difficult for communities to submit complete applications. In addition, Federal funding was not provided for waiver studies. Finally, because of EPA's current definition of "best practicable wastewater treatment technology," all communities will be required to have secondary treatment by 1983, regardless of whether they receive waivers. (See p. 22.)

GAO visited 34 coastal communities to determine why potential applicants did not apply for waivers, what problems communities that did apply had with the legislation and EPA's administration of it, what could be done to encourage additional communities to apply, and the potential construction and operation and maintenance cost savings for these particular communities. The total potential construction cost savings for the 34 communities are about $1.3 billion and the annual operation and maintenance cost savings are about $49 million. (See p. 11.)

Nineteen of the 34 communities are awaiting EPA waiver decisions. The other 15 communities either were not eligible because of legislative constraints or are no longer eligible since they did not file final waiver applications within the application time frame. For these 15 communities, up to $199 million in construction and about $9 million in annual operation and maintenance cost savings from waivers may be lost if changes are not made to the waiver provision. (See p. 11.)

SCIENTISTS AND OTHERS FAVOR A CHANGE IN APPROACH

The scientific and environmental groups and others GAO contacted believe the domestic wastes from communities, especially small ones, are often not harmful to the marine environment, particularly where discharges occur in open waters. Therefore, they believe the standardized application and review process EPA uses for all communities, irrespective of size and type of discharge, is not well suited to the waiver provision. (See p. 23.)

They state that the provision would be more effective if a stratified application and review process were used; that is, a process that considers size and type of discharge. Less detailed data would be required and waivers could be granted more rapidly to small communities discharging only domestic wastes into waters where the impact is minimal. Detailed data would be required and more careful analysis would be done for larger discharges and those containing industrial wastes. The degree of analysis done would also depend on the marine environment into which the discharges were being made, with more analysis done for sites that have unfavorable ocean conditions. (See p. 23.)

All scientists and others GAO interviewed favor this stratified approach because it would focus more attention on dischargers that have the most potential to harm the environment, while allowing others to receive waivers promptly. (See p. 23.)

EPA has developed simplified procedures for a few communities. (See p. 26.) An extension of those procedures would ease the regulatory burden for hundreds of other communities. (See p. 27.)

QUICK LEGISLATIVE AND REGULATORY CHANGES COULD LIMIT UNNECESSARY EXPENDITURES

Many potential waiver applicants are currently having to spend millions of dollars on secondary treatment facilities, and many construction decisions are impending. Quick congressional and EPA action could limit these unnecessary expenditures. (See p. 28.)

Tear Sheet

RECOMMENDATION TO THE CONGRESS

The Congress should amend the Clean Water Act of 1977 to allow for a continuous secondary discharge waiver process, for all coastal communities where the communities have shown that the risk of environmental damage is minimal.

In particular, GAO believes that the Congress should

--eliminate the requirement that treatment facilities must have an existing marine outfall to qualify for a waiver,

--remove the statutory deadline for filing waiver applications and provide for a continuous waiver process, and

--indicate that the waiver provision is not intended to preclude communities already achieving secondary treatment from obtaining waivers in cases where primary treatment is both cost effective and environmentally sound.

RECOMMENDATIONS TO THE ADMINISTRATOR, EPA

EPA should act to take full advantage of the cost savings potential. GAO's recommendations to the EPA Administrator are listed in chapter 6. (See p. 34.)

AGENCY COMMENTS AND OUR EVALUATION

In a March 16, 1981, letter, EPA stated that it generally agrees with many of GAO's proposals and believes that the report has treated a number of issues related to marine outfalls in a sensible, constructive manner. EPA believes, however, that the report should contain a more realistic discussion of the cost savings associated with secondary treatment waivers, including more detail about marine outfalls. It believes that more cost and environmental data should be developed before the waiver provision is reopened and expanded. Finally, EPA is concerned that the report takes positions on issues under litigation.

The examples GAO used in the report to illustrate significant possible savings were developed from the best information EPA had available.

Rather than discounting the potential savings, GAO encourages EPA to vigorously pursue the possible savings available through secondary treatment waivers. GAO believes the size of the possible cost savings and imminent construction decisions support the immediate reopening of the waiver legislation and modification of the waiver regulations. GAO has revised the report to protect against unnecessary impacts on issues under litigation. (See pp. 34 to 42.)

Tear Sheet

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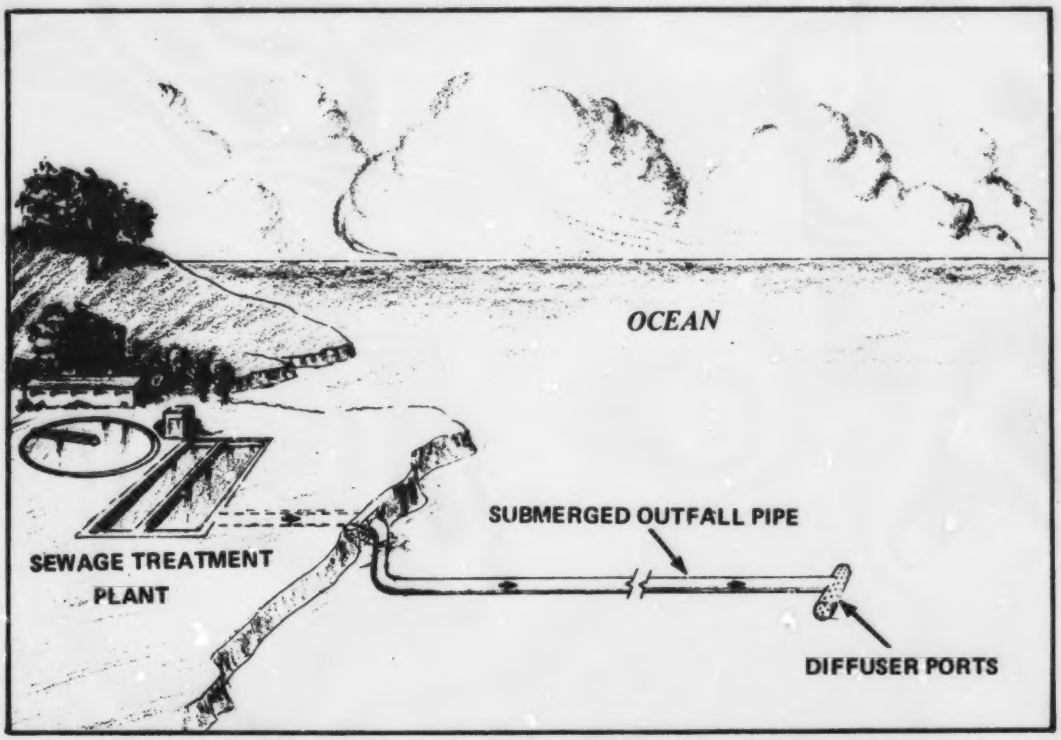
ABBREVIATIONS

EPA	Environmental Protection Agency
GAO	General Accounting Office
METRO	Municipality of Metropolitan Seattle
MGD	million gallons per day
O&M	operation and maintenance

GLOSSARY

Effluent	The wastewater discharged by an industry or municipality.
Effluent limitations	Restrictions established by a State or EPA on quantities, rates, and concentrations of chemical, physical, biological, and other constitutents discharged from point sources.
Marine outfall	The place where an effluent is discharged into the sea. (See diagram below.)



TYPICAL MARINE OUTFALL WITH SUBMERGED PIPE PERPENDICULAR TO THE SHORE AND MULTIPORT DIFFUSER TO DISTRIBUTE THE EFFLUENT.

Pretreatment	Processes used to reduce the amount of pollution in water before it enters the sewers or the treatment plant.
Primary treatment	Treatment using filtering and sedimentation techniques to remove about 30 percent of oxygen-demanding wastes. Substantially all floating or settleable solids are removed.
Secondary treatment	Treatment using biological processes to accelerate the decomposition of sewage and thereby reduce oxygen-demanding wastes by 80 to 90 percent.
Toxic substances	A chemical or mixture that may present an unreasonable risk of injury to health or the environment.

CHAPTER 1

INTRODUCTION

Many coastal communities in the United States discharge their municipal wastewaters into marine waters through submerged outfall pipes. The communities rely on the receiving waters to dilute and disperse the effluent, thus minimizing its impact on the quality of the receiving waters. Although Federal legislation has established secondary treatment or its equivalent as the minimum level allowed for municipal treatment facilities, waivers of this standard can be obtained for effluent discharged into marine waters. This report addresses the effectiveness of the secondary treatment waiver provision and its administration by the Environmental Protection Agency (EPA) in achieving the desired levels of environmental quality in a practical and cost-effective manner.

LEGISLATION AND REGULATIONS PROVIDING FOR SECONDARY TREATMENT WAIVERS

The Federal Water Pollution Control Act Amendments of 1972 (33 U.S.C. 1251 et seq.) required that by July 1, 1977, publicly owned waste treatment facilities achieve effluent limitations based upon secondary treatment, as defined by EPA, and that by July 1, 1983, achieve the "best practicable waste treatment technology."

In March 1974 members of Congress began to reevaluate the need for secondary treatment for coastal discharges. Considerable debate was generated concerning the need for processing municipal wastewater through secondary treatment levels when the effluent is discharged into the marine environment. Scientists, engineers, and others argued that, provided certain conditions were met, municipal wastewater processed through primary treatment had little adverse effect on the marine environment, and, in many instances, the additional cost of secondary treatment could not be justified.

In March 1974 the EPA Administrator authorized a task force to investigate the reservations that were being expressed on the need for secondary treatment of municipal effluent discharged into the ocean. The task force concluded that removing soluble, oxygen-demanding materials might not be necessary in all cases and recommended to EPA that construction of secondary treatment facilities for ocean discharges be postponed when the need to remove oxygen-demanding materials is questionable.

The Congress responded to the expressed concerns by amending the 1972 act in the Clean Water Act of 1977. That act, which added section 301(h) to the Federal Water Pollution Control Act, allowed publicly owned treatment facilities to apply for waivers to the secondary treatment requirement. The secondary waiver

provision focuses on the quality of the receiving waters and recognizes that relaxing treatment requirements often may not reduce the quality of those waters. The amendment was an attempt to reduce the costs of waste disposal while still maintaining environmental quality.

The 1977 act authorized funds through 1982 for constructing waste treatment facilities. Since 1972 the construction grant program has received appropriations of $35 billion. Fiscal year 1981 appropriations were $3.4 billion. From these funds, EPA makes grants to communities covering from 75 to 85 percent of eligible costs to design and build such facilities.

While the act allowed for marine discharges of some primary treated wastewaters, it effectively limited the number of publicly owned treatment facilities that could apply for secondary treatment waivers. First, the act limited eligibility to those facilities having existing marine discharges. Second, the act limited the application period, allowing only 270 days from the date of the act for potential applicants, many of which had not already undertaken extensive studies of their waste treatment options.

In addition, many east coast communities were discouraged from applying for a waiver. In December 1977 the EPA Assistant Administrator for Water and Hazardous Materials wrote to the House-Senate Conference Committee on amendments to the Federal Water Pollution Control Act. In his letter, the Assistant Administrator stated:

> "The Conference's adoption of the proposed definitions and criteria restricts the possibility of modification under this provision to a limited number of areas: California, * * * , San Juan, American Samoa, the Virgin Islands, Honolulu, Seattle, and Anchorage."

EPA wrote its proposed regulations accordingly, which it published on April 25, 1978. In the proposed regulations, EPA told potential applicants that its regulations were intended for a few west coast cities that had already accumulated data in order to meet the September 24, 1978, statutory deadline for submitting applications.

EPA did not publish the final regulations until June 15, 1979. After the final regulations were published, EPA allowed those communities which had submitted preliminary waiver applications only 90 days to submit final waiver applications. This time limit precluded those communities that had not already done extensive planning from applying, especially since the regulations required compiling extensive technical data over a minimum period of about 1 year (to include one wet and one dry season).

Even if communities receive waivers; they will still be required to achieve best practicable wastewater treatment technology by 1983. EPA has defined this best practicable technology as secondary treatment or its equivalent. In effect, this definition

limits the impact of the waiver provision since it thereby requires that all publicly owned waste treatment facilities meet secondary treatment standards by July 1, 1983.

Although 230 communities submitted preliminary applications, only 70 filed final applications within the specified time frame. As of April 1, 1981, EPA had not approved any of them.

OBJECTIVE, SCOPE, AND METHODOLOGY

We performed this review to determine whether changes in the legislation or in EPA's administrative strategies are needed to achieve desired levels of environmental quality as cost effectively as possible.

The issues addressed are:

--Do pollution control laws and implementing regulations regarding marine outfalls allow for achieving the desired levels of environmental quality in a practical and cost-effective manner?

--Are EPA's guidance and procedures adequate to ensure maximum participation by eligible applicants with minimal confusion and expense?

--Are additional cost savings possible through improved administration of the waiver provision?

To obtain a thorough understanding of the technical aspects of discharging municipal effluent through marine outfalls, we discussed the secondary treatment waiver provision with wastewater treatment experts in EPA headquarters and in regions I, IX, and X and in several of the EPA's Environmental Research Laboratories; the National Oceanic and Atmospheric Administration; Woods Hole Oceanographic Institute, Massachusetts; the Scripps Institute of Oceanography, California; the California Institute of Technology; the Southern California Coastal Water Research Project; the University of Washington; Oregon State University; the University of Rhode Island; the University of California at Berkeley; and Dartmouth University. We also contacted numerous EPA headquarters and regional personnel to discuss EPA's administration of the waiver provision.

To obtain a balanced view on the appropriateness of the waiver provision for different sites, we reviewed technical papers and documents prepared by scientists and engineers. We also interviewed individuals from the above listed institutions, and other individuals from public interest groups active in environmental issues, such as the Natural Resources Defense Council, National Wildlife Federation, Sierra Club, Citizens for a Better Environment, Environmental Defense Fund, and Pacific Legal Foundation.

We relied on our consultant, Dr. David Bella, professor of civil engineering at Oregon State University, to provide us with expert advice on the merits of the scientific information we reviewed. Since 1967 he has been on the faculty of the Department of Civil Engineering and is a member of the Graduate Faculty of Ecology. His teaching and research interests include environmental engineering; lake, river, and estuarine analysis; pollution ecology; and environmental planning. Dr. Bella is a registered professional engineer in Oregon and is a member of several professional societies and organizations.

We did not attempt to evaluate EPA's waiver approval process since EPA was still processing the 70 final applications while our field work was underway.

To determine the extent of additional cost savings possible through improved administration of the waiver provision, we identified and compared a list of potential waiver applicants with the EPA list of applicants that had applied for final waivers. To identify potential applicants, we selected 846 communities within 1/2 mile of all coastlines in the United States and its territories and possessions. The communities were obtained from EPA's 1978 Needs Survey. For those communities that did not apply for final waivers, we developed total potential construction cost savings by using the Needs Survey.

To find out why many communities did not apply for waivers and why many made only preliminary applications, as well as to obtain information concerning the application requirements and potential costs associated with secondary treatment, we visited 34 communities in Alaska, California, Connecticut, Maine, Massachusetts, Oregon, Rhode Island, and Washington. (See app. I.)

The communities visited were selected based on preliminary discussions with community, State, and EPA regional officials. They were chosen to provide a cross section of the potential cost savings which might be realized from waivers and to determine whether any problems were being encountered with the waiver application process. They were not selected on any statistical basis. Locations visited included communities with waste treatment facilities serving populations ranging from under 1,000 to over 3.5 million people. We also visited locations that had different levels of treatment--none, primary, or secondary--as well as those that had and did not have industrial wastes entering their sewer systems.

We obtained information on the 34 communities from community or regional sewer utility officials. Sanitation officials in the local communities we visited were an important source for the cost information we collected. Where possible, we obtained corroborating data from consulting engineering reports; however, we did not independently verify the cost information.

Two of the communities we contacted expressed considerable concern about imminent construction decisions. They told us that unless they were quickly granted secondary treatment waivers, they would have to spend millions on unnecessary sewage treatment construction. We decided that additional in-depth work at these locations would help people understand the problems communities are having and the benefits possible from quick action to alleviate these problems. Due to time constraints on this review, however, we did not attempt to do the same amount of in-depth work at the other locations we visited.

CHAPTER 2

BILLIONS OF DOLLARS IN CONSTRUCTION SAVINGS MAY BE LOST BECAUSE SEVERAL HUNDRED COMMUNITIES DID NOT APPLY FOR SECONDARY TREATMENT WAIVERS

EPA estimates indicate that $1.5 billion in Federal, State, and local construction costs could be saved if all 70 of the final waiver applicants were given secondary treatment waivers. We identified over 800 potential waiver applicants, representing billions in potential construction savings, that did not submit final applications for secondary treatment waivers. Most of these applicants represent small communities with populations under 10,000.

EPA ESTIMATES INDICATE BILLIONS IN POSSIBLE CONSTRUCTION SAVINGS

EPA's cost estimates for secondary treatment for communities that might be eligible for secondary treatment waivers range from about $1.5 billion to $4.6 billion. In 1974, an EPA task force estimated the construction costs for secondary treatment for communities that might be eligible for waivers. The task force estimated that about 60 publicly owned treatment systems that might be eligible would spend about $2.2 billion for secondary treatment facilities.

In June 1979, when announcing its final regulations for publicly owned treatment facilities applying for secondary treatment waivers, EPA reported that over 200 communities had filed preliminary applications. At that time, EPA projected that secondary treatment costs for these communities of up to $4.6 billion could be affected by waiver decisions.

Finally, in 1980, an EPA member of the secondary waiver task force estimated secondary treatment construction costs of about $1.5 billion for the 70 sewage treatment facilities that had submitted final waiver applications. EPA reported that this figure represents an estimated net cost, offsetting about $3.5 billion in construction costs for secondary treatment with about $2 billion in construction costs that would have to be incurred anyway to build needed basic facilities, such as primary treatment plants.

None of the EPA cost estimates were increased to include the operation and maintenance (O&M) costs that would be incurred for secondary treatment.

GAO ESTIMATES ADDITIONAL BILLIONS COULD BE SAVED

We estimate that up to $10 billion might be saved by over 800 potential secondary treatment waiver applicants. This total was computed using limited information and is intended only to indicate that a high potential exists for saving additional billions of dollars if many of the potential marine dischargers received secondary treatment waivers.

GAO cost study

We identified all communities within the United States and its territories and possessions that have a potential for discharging primary wastes into the marine environment. We selected all communities within 1/2 mile of all coastlines in the United States and its territories and possessions because they have a potential for discharging sewage wastes into marine waters. We excluded Chesapeake Bay area facilities because of the biological sensitivity of these estuarine waters.

We obtained construction costs for the communities we identified from EPA's 1978 Needs Survey. This survey shows cost estimates for constructing publicly owned wastewater treatment facilities throughout the United States and its territories and possessions. We included costs for treatment facilities only and excluded costs for such associated projects as correcting infiltration/inflow problems, rehabilitating sewers, building new collection and interceptor systems, and treating stormwaters.

EPA developed the Needs Survey cost estimates with State and contractor assistance. They represent the most complete estimates of construction needs available. For the purposes of our review, we did not attempt to verify the completeness or accuracy of the survey data.

GAO-computed savings

Our cost saving estimates range from $4 billion to $10 billion, depending on the criteria for selecting communities. The $4 billion estimate includes 714 communities that have only municipal sewage and little or no industrial wastes. The $10 billion estimate includes all 846 communities we identified. Of the 846 communities, 88 percent have populations under 50,000 and 76 percent have populations under 10,000. According to our consultant, smaller communities that have no industrial wastes would be the most logical communities to receive secondary treatment waivers if wastes were discharged into relatively open waters with adequate flushing action. The waste discharges from these communities are relatively small and nontoxic; therefore, they would be the most easily assimilated in marine waters. In addition, these communities typically have greater difficulty paying for pollution control improvements than larger communities.

The many social and economic hardships that smaller communities encounter in paying for new sewage treatment systems were reported in our May 1980 report. 1/

Our cost savings totals include only the estimated costs of building secondary treatment facilities. Costs for primary treatment facilities that would be needed even if the secondary facilities were not built have been excluded from our savings totals. If additional information were available, the savings totals could be increased and decreased by several other factors. They could be increased by the O&M cost savings for (1) all the facilities that would not have to be built and (2) all the facilities that already have secondary treatment but which could be cut back to primary. On the other hand, a number of the communities discharge wastes into bays and estuaries where secondary treatment is likely justified; thus, actual savings could be lower than our estimate. Also, the savings could be decreased by the cost to build new marine outfall pipes, which could preclude many communities from saving money through secondary treatment waivers. This cost information was not available in EPA's 1978 Needs Survey and would have been too time consuming and costly for us to develop during this review.

Although the cost saving estimates could be improved, we believe they provide a good indication that billions of dollars in additional savings are possible through extending the secondary treatment waiver provision to all possible dischargers.

Chart 1, comparing EPA's cost saving estimates with ours, shows that we estimate several billions of dollars of additional construction cost savings are possible through secondary treatment waivers.

1/"EPA Should Help Small Communities Cope With Federal Pollution Control Requirements" (CED-80-92, May 30, 1980).

Chart 1

Secondary Treatment Waiver Cost Savings Estimates

EPA task force estimates	Number of applicants	Estimated savings (billions)
1975 initial	60	$2.2
1979 preliminary applicants	230	4.6
1980 final applicants	70	1.5
1981 GAO estimates		
Savings for potential applicants with little or no industrial wastes	714	a/ 4.0
Savings for potential applicants with domestic and industrial wastes	846	a/ 10.0

a/These totals have been rounded to the nearest billion to indicate they are not precise.

Chart 2 compares our estimates of the total number of potential applicants with the final EPA list of applicants. This chart shows that several hundred potential applicants did not submit final applications for waivers. Although these communities range from populations under 10,000 to over 50,000, most of these potential applicants represent communities with populations of less than 10,000.

Chart 2

Number of Potential Waiver Applicants

Community populations	Under 10,000	10,000 to 20,000	20,001 to 50,000	50,001 and over	Total
GAO estimate of potential applicants	592	88	68	98	846
EPA list of final applicants	21	3	10	36	70
Potential additional applicants	571	85	58	62	776
Percent of total potential additional applicants	74	11	7	8	100

CHAPTER 3

LEGISLATIVE CONSTRAINTS AND RESTRICTIVE EPA PROGRAM ADMINISTRATION LIMITED WAIVER APPLICATIONS

We visited 34 communities on the east and west coasts of the United States to evaluate the impact of the waiver legislation and EPA's implementing regulations. Twenty six of these communities filed preliminary waiver applications with EPA, but only 19 filed final applications. We asked community officials why they did or did not apply for waivers and what problems they encountered. If all 34 communities were to obtain waivers, their total potential construction cost savings would be about $1.3 billion and the annual O&M cost savings would be about $49 million. Because of legislative constraints and restrictive EPA actions, however, 15 of the 34 communities are not eligible for waivers. For these 15 communities, up to $199 million in construction and $9 million in annual O&M cost savings from waivers may be lost if changes are not made. (See app. II.)

MANY COMMUNITIES WERE PRECLUDED OR BECAME DISCOURAGED FROM SUBMITTING WAIVER APPLICATIONS

Legislative constraints, restrictive EPA regulations and the communities' perceptions of application requirements precluded or discouraged many coastal communities from applying for a waiver. Others undertook extensive and expensive studies to complete their applications.

Facilities without a marine outfall or meeting secondary treatment standards were ineligible

The waiver provision of the Clean Water Act of 1977 precludes wastewater treatment facilities without existing marine outfalls from being eligible for waivers. Further, EPA has interpreted the provision as prohibiting waivers for communities already meeting secondary treatment effluent limitations. These constraints mean that many communities will be required to build secondary treatment facilities or continue providing secondary treatment. Thus, they will continue to incur unnecessary O&M costs and, in some cases, construction costs.

Since the waiver provision limited eligibility to communities with existing outfalls, many communities were precluded from applying. For example, the Municipality of Metropolitan Seattle (METRO) operates five treatment plants, serving about 905,000 people and having a total average wastewater flow of 170 million gallons per day (MGD). METRO applied for a waiver for only four of those plants because the fifth was ineligible for a waiver under the

legislation because it did not yet have an existing marine outfall. METRO estimated that if a waiver could be obtained for the fifth plant, an additional $84 million in planned construction costs for facility expansion could be saved ($310 million for continued secondary treatment versus $226 million in capital costs if the facility could operate at a primary treatment level). METRO also estimated it could save another $3.7 million in O&M costs annually ($8.9 million per year for secondary treatment versus $5.2 million) if the facility were operated at a primary treatment level.

EPA regulations, which reflect its view of legislative intent, prohibit communities meeting secondary treatment requirements from being eligible for waivers--a requirement that excluded many additional communities from waiver eligibility. For example, Avalon, California, is a small island community with a permanent population of 2,000 that swells to 8,000 during the summer tourist season. Avalon appears to be ideally suited for a waiver because it has no industry and the ocean depths and currents near Avalon contribute to rapid effluent dispersion. Despite the environmental suitability of Avalon for a waiver, it could not apply for one because EPA final regulations precluded anyone currently achieving secondary standards from applying.

Stringent application requirements discouraged communities

Some communities we visited were discouraged from taking advantage of the waiver provision because of EPA's complex regulations, the time constraints imposed, and the high cost of preparing a waiver application. Some examples are discussed below.

The perceived EPA-imposed complexities and administrative obstacles were a major reason why officials for the Encina Treatment Plant serving a population of 180,000 in North San Diego County, California, did not submit a final waiver application. When the waiver provision became law in 1977, Encina was actively pursuing expansion plans. The area being served was growing rapidly, and delays in obtaining grant funds for expansion had already resulted in the construction or reactivation of small and inefficient satellite treatment plants.

Encina officials wanted very much to obtain a waiver; therefore, they filed a preliminary waiver application. Because of their pressing expansion needs, however, Encina officials had to continue planning for secondary treatment facilities until EPA published final waiver regulations. When EPA published the final regulations in June 1979, Encina officials were overwhelmed by the amount of data gathering and analysis to be completed in the allotted 90 days. Furthermore, they were afraid that a lengthy EPA application review process would greatly delay, if not totally jeopardize, their previously submitted grant application for expanded treatment facilities. Consequently, Encina officials decided not to make a final waiver application.

Encina's general manager said that had EPA simplified the waiver process, (1) Encina should have qualified easily for a waiver and (2) the development of secondary treatment facilities could have been stopped in the design phase--before construction started.

The Supervisor of the Water Quality Management Section of the Washington State Department of Ecology described Port Townsend, Washington, with its population of about 6,000, as "ideally located" for a secondary treatment waiver because the outfall for its present primary treatment plant is situated in deep water with strong currents. However, the Port Townsend sewer superintendent and the city clerk and treasurer told us that they did not submit a final waiver application because they did not have the money or expertise necessary to complete the application in the short time allotted. They estimated the cost to hire a consultant to be $50,000--20 percent of the district's total annual budget--which officials were unwilling to risk given such complex and stringent requirements and limited time to meet those requirements.

These community officials pointed out that, in addition to savings in capital construction costs of $1.5 million, residents could realize significant savings if Port Townsend were granted a waiver. They said that annual O&M savings would be about $50,000; thus, residential rates would remain at $5 a month rather than doubling when secondary treatment is completed.

Both the engineering consultant for Newport, Rhode Island, and the Rhode Island Department of Environmental Management originally considered Newport, a city of about 30,000, to be a good candidate for a secondary treatment waiver. They stated that the community had no industrial or toxic wastes. After seeing EPA's final waiver regulations, however, both the consultant and the State reconsidered and concluded that the city's chances of obtaining a waiver were "not good" and "extremely slim." The city's consultant advised Newport that the regulations were extremely complex and difficult to interpret. The consultant also pointed out that the discussion in the Federal Register preceding the regulations themselves was less than encouraging. This discussion stated that (1) it was highly unlikely that an application providing the required information could be completed unless extensive studies had already been undertaken and (2) applicants seeking waivers based on future improvements would bear the additional burden of demonstrating that their proposed discharges under a waiver would meet requirements of the act and the regulations.

In view of these statements, the regulations themselves, and the $90,000 estimated cost of an application, the consultant advised the city not to apply for a waiver. Newport followed this advice and did not submit a final application, even though city officials estimated that they could eventually save almost $10 million in construction and O&M costs. Newport's city engineer said that he believed that EPA would not give Newport a

waiver--that the regulations had been written solely for the west coast and EPA had no intention of granting waivers to any east coast communities. He and Newport's consultants said that both the short time frame allowed to complete the application and the subsequent monitoring costs 1/ required if a waiver were granted discouraged Newport from submitting a final application.

The cost of preparing applications discouraged many applicants

Most communities we visited that had applied for a waiver had engaged consultants at considerable cost to collect water quality information and prepare their applications. As shown on the following page, the cost of an initial waiver application becomes more burdensome as the size of a community or service area decreases. The high cost of collecting basic data through monitoring and applying for a waiver was an effective deterrent to many waiver applicants.

1/The projected high costs of monitoring are listed in appendix II.

Population of community or service area	Average daily flow (MGD)	Initial application Total cost	Initial application Per capita cost
Los Angeles County, Calif. 3,500,000	365.00	$ 260,000	$ 0.07
Seattle, Wash. 640,000	130.30	1,170,000	1.83
Anchorage, Alaska-- 165,000	24.00	250,000	1.52
Bellingham, Wash. 43,000	6.40	b/80,000	1.86
Gloucester, Mass. 16,500	3.05	140,000	8.48
Sitka, Alaska-- 8,000	a/1.80	72,000	9.00
Wrangell, Alaska-- 2,000	0.40	b/75,000	37.50
Peaks Island, Maine-- 400	0.20 to 1.0	23,000	57.00

a/Design flow.
b/Estimated.

Given the high cost of applications, which ranged from $23,000 to over $1 million for the communities we visited, and the fact that many communities had not collected the data necessary to complete an application, EPA's determination that grant funds could not be made available to help communities finance data collection served as an effective deterrent for many applicants.

Several commentors on the proposed waiver regulations suggested that EPA make grant funds available to communities to collect data and prepare their waiver applications. However, EPA did not do so. EPA's justification is that the Congress provided funding to carry out the requirements of the waiver provision, not to

determine whether applicants meet the requirements. EPA believes the waiver provision was based on the theory that communities had already accumulated data necessary to demonstrate their eligibility for waivers and believes it is highly unlikely that the Congress would have enacted a provision permitting EPA to grant funds to collect such data.

EPA's regulations, however, provide communities with Federal funds through three separate Federal matching grant awards:

--Step 1 grant - preparing facility (preliminary) plans.

--Step 2 grant - preparing design plans and specifications.

--Step 3 grant - constructing the treatment facility.

During step 1 facilities planning, the municipality--usually through a contract with its consulting engineer--is supposed to identify the water pollution problems, analyze alternative solutions, and select the most cost effective, environmentally sound alternative within EPA and State guidelines and regulations. By systematically evaluating feasible alternatives, the plans must demonstrate that the system represents the most cost-effective means of meeting established effluent and water quality goals and of recognizing environmental and social considerations.

In many cases, a secondary discharge waiver may be the most cost-effective facility alternative; therefore, the cost of analyzing this alternative would appear to be a logical cost of step 1 facilities planning for many coastal communities.

SEVERAL STATES, COMMUNITIES, AND OTHERS VIEW LEGISLATION AND ITS IMPLEMENTATION AS NEEDLESSLY RESTRICTIVE AND BURDENSOME

Our consultant and many other groups, including State and community officials and other engineering consultants, believed that the legislation and EPA implementing regulations were needlessly restrictive and they recommended ways to reasonably ease the burden on communities of applying for waivers. Almost all these officials and consultants pointed out that small communities were denied even the opportunity to apply for waivers because they lacked the resources to prepare an application. Also, most stated that the time frame allowed for submitting applications was too short for communities to obtain the required information.

Communities and their consultants have also pointed out that the continuing monitoring requirements (if waivers were granted) were complex, involved, unnecessary, and served to discourage communities from applying for waivers.

GAO consultant

Our consultant reviewed EPA's proposed rules dated April 25, 1978, the final regulations of June 15, 1979, and other pertinent documents. He did not conclude that EPA's regulations were overly restrictive for large communities with industrial wastes. He pointed out that scientific assessments are extremely complex and scientific information is often inadequate. He concluded, however, that EPA's single set of regulations often placed undue burdens on the smaller communities, particularly those with no industrial wastes. Those communities for which a waiver could best be justified (small communities discharging domestic wastes into open waters) were essentially eliminated from the waiver process because of the complex demands of the regulations. Therefore, communities for which waivers could be technically justified with little controversy may be forced to provide secondary treatment unless an alternative screening or priority system is used.

State officials

Officials from several States told us that both the draft and final EPA regulations were needlessly restrictive. California State Water Resources Control Board officials told us that the draft and final EPA regulations were unnecessarily restrictive. These officials believe that no reason existed to restrict applications on the basis of whether treatment plants were achieving secondary treatment standards. Furthermore, they did not believe the extensive information required in the EPA process was necessary or reasonable, particularly for small communities with little or no industrial discharge.

California adopted an ocean water quality control plan in 1972. Board officials believed that using this plan would have resulted in a far simpler application process. EPA region IX officials stated that using the ocean plan in lieu of the waiver process would have (1) given California an ideal substitute for the present waiver process and (2) greatly simplified and accelerated the application process. EPA region IX officials told us that they discussed using the ocean plan in California with EPA headquarters officials, but the headquarters officials rejected the idea because they did not want separate application processes for each State.

In June 1978, during public hearings on EPA's proposed waiver regulations, the Washington State Department of Ecology commented:

> "Generally, we believe the proposed rules are much too restrictive. It is difficult to see how any municipality, particularly small communities, would even be able to apply, much less qualify under these rules for a waiver of the secondary treatment requirement. We believe that the intent of Congress under section 301(h) was to allow modifications where it can be reasonably

demonstrated that the national interim water quality goal will not be jeopardized. These proposed rules appear contrary to congressional intent."

In its April 1979 comments on the EPA draft "Technical Support Document," which supplemented the waiver regulations, the Washington State Department of Ecology officials pointed out that:

"* * * there is no attempt to differentiate between the requirements for small sized communities seeking waiver [sic] and those for larger cities. This is a problem since the small city will thereby loose [sic] the opportunity for [sic] waiver simply because it cannot afford to fulfill the requirements of the proposed regulations. In actuality, the small city's discharge, so long as toxics are not present, has much less impact on the receiving water than the large city."

The Chiefs of the construction and operation and the water quality monitoring sections of the Alaska State Department of Environmental Conservation told us that EPA information requirements and the time allowed to obtain that information were not reasonable, particularly for small communities with no industrial wastes. In its May 1979 comments on the EPA draft "Technical Support Document," the State said that the questionnaire that EPA developed to obtain technical information was appropriate only for systems serving very large populations. It said that for large systems with industrial wastes, such as the city of Los Angeles, with 3.5 million people, much of the requested information might be relevant. However, it stated that for Alaska's small towns and villages much of the information requested was esoteric and few communities would be capable of supplying or even interpreting the information requested.

The Chief of the Rhode Island Division of Water Resources and another sanitary engineer in the division told us that EPA's waiver regulations appeared to have been designed to discourage applicants. They pointed out that the high cost of retaining a consulting engineer to prepare the application and the lengthy time between submitting the application and obtaining the final decision from EPA were risks most communities could not afford.

Sanitary engineers in the Massachusetts Division of Water Pollution Control said that although the concept of the waiver legislation was valid, EPA's regulations were needlessly restrictive and EPA apparently did not want to grant secondary treatment waivers. They said that the regulations (1) required a costly investment by communities to submit an application, (2) allowed unrealistically short time frames to obtain the

necessary data, (3) prevented communities without existing marine outfalls from applying, and (4) imposed fresh water discharge standards on salt water environments.

Community officials

Officials from three major metropolitan areas also believed that EPA regulations were overly restrictive.

The head of the Technical Services Department and the project manager for the 301(h) provision of the Los Angeles County Sanitation District stated that EPA draft regulations were overly restrictive; thus they had spent much time and effort to obtain data and pursue arguments that the final regulations did not require. They added that, while the final regulations were a large improvement over the draft regulations, the changes in the final regulations required extensive changes to their application and allowed very little time (90 days) to obtain the detailed information requested.

The Los Angeles County officials also described some of the environmental requirements that they believe were overly restrictive or vague. Specifically, they did not believe EPA's definition of "zone of initial dilution" for ocean discharged wastewater was realistic because the actual zone varies. 1/ They also said that the applicants' analyses were made more difficult because a workable definition of "balanced indigenous population" was not provided. 2/ For instance, guidelines limiting the analyses to several key "indicator" organisms would have been helpful.

While the Los Angeles County officials did not believe any of these problems were large enough to jeopardize the outcome of their final application, they did note that these problems increased application costs and may have discouraged other sanitation districts from applying.

The City of San Diego director for water utilities cited most of these same problems, including:

--Overly restrictive draft regulations.

--Insufficient time to respond to final regulations.

1/EPA's waiver regulations require that the dilution of effluent achieved by an applicant's outfall at the edge of the area surrounding the discharge point must be sufficient to meet State water quality standards.

2/EPA's waiver regulations required an applicant to demonstrate that a modified discharge would not interfere with the maintenance of the natural population of shellfish, fish, and wildlife.

--Overly detailed data requirements (making the application needlessly expensive).

--The lack of focus on the incremental costs and benefits of primary and secondary treatment in the final application requirements.

The Municipality of Anchorage brought suit against the EPA Administrator, challenging parts of EPA's final June 1979 waiver regulations. The city charged that once EPA issued its final regulations, it was impossible to obtain part of the information required for the application by the deadline imposed. Both the critical wet and dry periods for which information was required fell outside the 90-day period allowed.

In this regard, Anchorage noted that for EPA to ask communities to start collecting data in advance of final rulemaking was to assume that EPA would not seriously consider comments received on its proposed rulemaking. The manager of Technical Services, his assistant, and a project manager of the Anchorage water and sewer utility told us that $55,000 of the $75,000 it had spent on its application before EPA issued final regulations was wasted because the information obtained was no longer usable because of changed requirements.

Anchorage also charged that, under EPA's regulations, it would have to spend inordinate amounts of money on monitoring that would be of little or no benefit to the community, EPA, or the integrity of the receiving waters. It stated that the biological monitoring program was arbitrary, capricious, and in excess of EPA's statutory authority. It further stated that the requirements were not practical and were too burdensome when site-specific conditions did not warrant them. For example, it said that if it were required to suspend caged species in Cook Inlet for the purpose of in-place bioassays, 1/ keeping them alive would be extremely difficult and probably impossible because of the extreme conditions they would be placed in.

As of March 12, 1981, the U.S. Court of Appeals had not rendered a decision.

Consulting groups and others also said EPA's regulations were restrictive

Several groups and individuals told us that EPA's regulations were overly restrictive. Some of their comments and specific

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1/EPA's waiver regulations require the monitoring program to include chemical analysis of caged shellfish placed both inside and out of the zone of initial dilution to accumulate toxics and pesticides, if any are present. The species must remain at these locations for several weeks for this analysis.

examples of why they believed the regulations were restrictive are cited in the following paragraphs.

The following comments from a large, national consulting firm regarding EPA's secondary treatment waiver regulations were typical of comments we received during our review. This firm worked for a California community of 70,000 having primary treatment.

> "* * * preparation of an application for modification of the secondary treatment requirement under the provisions of Section 301(h) will be * * * costly. Moreover, we believe the scope of the data base required by the revised regulation is far beyond the capability of any discharger to develop within the time available between the present and the date of submission of applications. Indeed, smaller dischargers would not have the resources to fund the necessary monitoring and research efforts. In summary, we believe the draft final regulations have been deliberately conceived and configured to eliminate all but a few dischargers from consideration for a modified discharge permit."

A marine biologist from Woods Hole Oceanographic Institution in Massachusetts, who had helped prepare waiver applications, told us that EPA's waiver regulations required a far too detailed application and were unreasonable. He said that the time allowed for preparing the application was far too short to obtain the required information. He also said that the application process was very costly and many communities with good cases for a waiver could not afford to apply.

The engineering consultant for Lynnwood, Washington, warned the community that even if it received a waiver, EPA regulations would force the community to construct secondary treatment facilities by July 1, 1983. Currently, legislation requires all communities to achieve best practicable wastewater treatment, which EPA has defined as secondary treatment, by that date. EPA stated in its final waiver regulations that it was considering expanding the definition of "best practicable wastewater treatment technology." We believe this is a good idea and believe EPA should expand this definition to include primary treatment when waivers are granted so that these communities will not have to build secondary treatment facilities.

Finally, in June 1978 EPA public hearings on the waiver regulation, the president of the Association of Metropolitan Sewerage Agencies told EPA that although the association appreciated the difficulties in administering the waiver provision, it believed

EPA regulations would preclude all but a few communities from applying. He pointed out that:

> "* * * EPA documents, statements, and proposed regulations treat section 301(h) as though it is an unreasonable burden that was imposed upon the agency and that care must be taken to ensure that no municipal agencies qualify, or if they do qualify, that the costs and the risks will be so great the municipal systems will not even want to file applications. We do not conceive the congressional policy to be cast in such restrictive terms that none or only one or two agencies will qualify * * *."

He suggested that, while the regulations should be stringent, they should not be cast in virtually impossible terms.

EPA IMPLEMENTATION WAS INTENDED TO LIMIT APPLICATIONS

At the time the waiver legislation was being considered, EPA expressed to the Congress concern over EPA's ability to manage the workload if too many communities applied. EPA stated that waivers should be restricted to certain areas; otherwise many municipalities would seek waivers, which would create an extraordinary drain on agency resources. EPA pointed out that because of limited scientific understanding of the effects of effluents on oceans, decisions would have to be highly judgmental and appealable in the courts. EPA expressed concern that the net effect of this whole process would be a return to the requirement of proof of harm to receiving waters.

Our consultant agreed that scientific information is often very limited, particularly with respect to synthetic toxics. He further agreed that it would be very unfortunate if the process did lead to the requirement of proof of harm to receiving waters. The EPA waiver process, however, served to eliminate smaller communities from even applying for a waiver. Yet, our consultant believes the environmental impacts of waiving secondary treatment would be easiest to assess for these smaller communities.

CHAPTER 4

SCIENTISTS AND OTHER GROUPS FAVOR A STRATIFIED APPLICATION AND REVIEW PROCESS

The potential for environmental damage from marine discharges increases significantly with the size of the discharge and the amount of industrial wastes in it. Thus, a lesser degree of analysis is needed for smaller communities discharging domestic wastes than for larger communities discharging domestic and industrial wastes. This difference indicates that a stratified approach is needed for the waiver process. With this stratified approach, regulatory requirements would be less stringent for small communities discharging domestic wastes into favorable ocean conditions (adequate flushing action) than for large communities discharging industrial and municipal wastes into unfavorable ocean conditions.

Scientists and other experts, including our consultant, favor this stratified approach in which larger dischargers with industrial wastes are given priority attention and the administrative burden on small communities is reduced. EPA has already modified its requirements for certain island and Alaskan Native villages, and regional EPA officials have recommended futher revisions to ease the burden on small communities.

GAO CONTACTED SCIENTISTS AND ENVIRONMENTALISTS TO OBTAIN THEIR VIEWS ON THE SCIENTIFIC REASONABLENESS OF THE WAIVER PROVISION

We contacted scientists active in marine biology and other related subjects, as well as several environmental groups, to obtain their opinions about the scientific reasonableness of current requirements for obtaining secondary treatment waivers. We discussed EPA's requirements and administration with engineers and with State and city officials and their consultants.

We relied on our consultant to review the comments of the scientists and others to assure they appeared reasonable and reflected the consensus of the scientific community.

These people favor a stratified approach so that resources would be focused on dischargers having the greatest potential environmental impact

All the scientists, environmentalists, and others we contacted believe EPA's waiver requirements should be more rigorous for large dischargers that have industrial wastes than for small dischargers of domestic wastes. Under this

approach, which stratifies waiver applicants based on the degree of environmental risk of their discharges, EPA would promptly grant waivers when the environmental risk was low. When EPA granted waivers but subsequent monitoring disclosed a detrimental change in the marine environment, action could be taken at that time to resolve the problem. With small discharges, there would be little potential that critical, irreversible damage to the environment would occur before the problem was corrected.

According to the scientists we contacted, each potential waiver site has distinct characteristics that should be considered in the application process. They also said that because discharges of domestic wastes pose less of a threat to the environment than discharges of industrial wastes, less rigid waiver application requirements are needed for dischargers of domestic wastes. For example, one oceanographer (the Assistant Director for New Programs of the Division of Marine Resources at the University of Washington) believed EPA's regulations are too restrictive because they try to cover all discharges and environmental conditions under one set of rules. He recommended that the application process consider the specific conditions at each site so that waiver decisions can be based on the merits of each case.

Another oceanographer (the Director of the Southern California Coastal Water Research Project--a private research project) noted that EPA needs to consider the natural characteristics of disposal areas so that treatment can be fitted to the local circumstances. He noted specific areas where outfalls of domestic wastes had only a limited impact on the environment which was reversible, and recommended that EPA regulations consider this evidence in the waiver process.

A marine biology professor at Dartmouth University told us that EPA's regulations prohibited many small communities that would be good waiver candidates from applying. He thought that EPA should consider the ocean conditions at each site when reviewing the waiver applications. Finally, an EPA ecologist told us that he thought the EPA regulations could be less stringent for small communities where the risk of irreversible and immediate damage to the marine waters was low.

The environmental groups we contacted favored a tiered approach. The National Wildlife Federation, a national environmental group, testified in April 1978 congressional hearings that it was concerned about large industrialized cities where pretreatment will not adequately remove toxics, but was less concerned about granting waivers to small coastal communities where toxics are not a problem.

In June 1980 legislative hearings, the National Wildlife Federation proposed a tiered process in which regulatory requirements for each municipality would be proportional with

the degree of uncertainty that exists. The federation saw a spectrum with Skagway, Alaska, at one end and Los Angeles County at the other. Skagway, which does not seem to have any toxic problems, would receive a waiver fairly easily. At the other extreme, Los Angeles County would be subject to rigorous scrutiny. Other large municipalities with relatively small amounts of industrial wastes would fall somewhere in between.

Officials from several States and communities recommended administrative revisions to the waiver process that emphasize a stratified approach. California, Washington, and Alaska environmental officials all told us that they did not believe the extensive information required by EPA in the waiver process was necessary or reasonable, particularly for small communities with little or no industrial discharge. For example, in April 1978 comments on EPA's preliminary concept paper for the proposed waiver regulations, the Alaska Department of Environmental Conservation recommended (1) that the final regulations include special provision for small, remote communities with no industrial discharges and virtually unlimited dilution available in the receiving waters and (2) the burden of proof required to obtain a waiver be greatly minimized for these communities. In its May 1978 comments on EPA's proposed waiver regulations, the department suggested that EPA consider the reasonableness of the regulations for small communities discharging only domestic wastes. The Department said that, in its view, the law's primary intent was to assist these communities; however, as the regulations were written, these communities would be excluded because they lacked the resources to comply with the regulations.

The engineering consultant for Sitka, Alaska, also suggested that a simplified waiver application would be adequate for small communities without industrial wastes or toxics, especially true in Alaska because of the small size of the communities, the extreme tides and strong flushing action, and the distance between communities.

Representatives of two communities believed a committee composed of representatives from Government, academia, and industry should screen applications so that those from small communities with little or no industrial discharge could be rapidly processed, thus accelerating implementation of the waiver process and reducing the burden on small communities.

Many other State and local officials and consultants also suggested that EPA should have developed a simplified or short-form application for small communities that do not discharge industrial or toxic wastes.

Our consultant agreed that the degree of risk to the environment should be reflected in the program's administration, which would be designed to ease the regulatory burden

on small communities. He suggested that a simplified waiver application form would be adequate for small communities like Haines, Alaska, that have small discharges and no industry.

EPA HAS SET A PRECEDENT BY TAILORING ITS PROCEDURES FOR A FEW COMMUNITIES

EPA has recognized the special needs of certain native villages in its final regulations. The stratified approach discussed above would be an extension of that type of administration whereby requirements would be designed to fit various types of dischargers and would ease the regulatory burden on medium-sized and small communities that have little industrial wastes.

Procedures fit the needs of island and Alaskan communities

EPA developed simplified procedures for coastal native villages in the Trust Territory of the Pacific Islands, the Northern Mariana Islands, Guam, American Samoa, the Virgin Islands, Puerto Rico, and Alaskan Native villages. EPA's policy for these villages is basically as follows:

--EPA will use its discretion in requiring secondary treatment when industrial toxic wastes are not a factor.

--EPA will consider public health protection.

--Delays must not result in unreasonable adverse water quality impacts.

--EPA will examine alternatives to traditional secondary treatment.

--EPA will emphasize economical solutions with particular emphasis on O&M costs.

We discussed the special provisions for native villages with EPA officials in Alaska and California responsible for administering the waiver provision in Alaska and the Pacific islands. They explained that because of these simplified procedures, EPA can more effectively consider the needs of a community and the quality of the receiving water. Often a treatment facility is planned and constructed with subsequent monitoring of the marine environment being the factor in determining if additional levels of treatment are required.

Regional EPA officials recommend simplified procedures for small communities

Region X EPA officials have also recommended to EPA headquarters officials that a simplified policy be developed for

small communities. Under their recommended waiver process, eligible small communities would be those (1) with a population of less than 10,000 whose municipal effluent contained no known or suspected industrial source of toxic pollutants and (2) which discharged into deep ocean waters with strong currents and tides and good flushing action. The region prescribed a shortened application with a lesser burden of proof required for dischargers of small quantities of domestic wastes. Region X officials believe some discretion should be exercised concerning the reasonable burden of proof necessary to meet these requirements and believe the regulatory requirements are not now reasonable for small communities. These issues are being discussed by the region and EPA officials in Washington, D.C.

Our consultant believes that, with minor modifications, this simplified policy would substantially lessen many of the unnecessarily burdensome requirements placed on small communities.

CHAPTER 5

QUICK CHANGES TO THE LEGISLATION AND EPA REGULATIONS COULD LIMIT UNNECESSARY FEDERAL, STATE, AND LOCAL EXPENDITURES FOR IMPENDING CONSTRUCTION PROJECTS

During our review we looked in depth at two communities that appeared to have excellent potential for waivers--but are not being considered. Both communities have impending construction decisions, and within the next few months will have to decide whether or not to build or upgrade secondary treatment facilities. The Congress needs to modify the legislation and EPA needs to change its regulations to allow communities like these to apply for secondary treatment waivers. These changes could stop potentially unnecessary secondary treatment construction scheduled to start in the next several months. We believe similar situations exist in many other coastal communities and that quick congressional and EPA action could save millions in unnecessary Federal, State, and local expenditures for pending construction and for unneeded O&M, including energy costs.

MORRO BAY, CALIFORNIA, COULD SAVE $2 MILLION IN FEDERAL, STATE, AND LOCAL CONSTRUCTION FUNDS

Morro Bay, California, appears to be an outstanding candidate for a waiver, but it is not a finalist in the EPA waiver application process. Therefore, Morro Bay must proceed with plans using Federal funds for additional secondary treatment oxidation facilities. Morro Bay officials did not want these additional secondary facilities because of the associated high operating costs and the lack of projected improvements to ocean waters.

According to the Morro Bay Director of Public Services, eliminating the requirement for these additional secondary oxidation facilities could save an estimated $2 million in construction funds (the funding is 75-percent Federal, 12.5-percent State, and 12.5-percent local). Also without this construction, Morro Bay may save as much as $100,000 a year in O&M expenses. However, these savings are possible only if the Congress reopens the waiver time frame in the very near future.

The following information on Morro Bay's treatment plant and its attempt to obtain a secondary treatment waiver explains why we believe the Congress and EPA should try to save Federal, State, and local construction grant money by considering Morro Bay for a waiver.

The Morro Bay treatment plant needs refurbishing but not additional secondary facilities

The existing treatment plant serves a population of about 10,000 and processes about 1.7 MGD of sewage. All sewage undergoes secondary processing through single-stage trickling filters. The plant is old (40 percent of the plant capacity was built in 1954 and the remainder in 1964) and needs improvements to reduce O&M problems and to improve processing efficiency and capacity. However, this needed work can be done without constructing costly additional secondary oxidation facilities.

Even without the above improvements, the plant is able to achieve the California Ocean Plan standards that will apply to California facilities with a secondary treatment waiver. In the case of Morro Bay, the most significant Ocean Plan standard is the ability to meet the 75-percent suspended solid removal requirements. Morro Bay consistently exceeds this standard, despite badly needed refurbishments.

Although plant performance generally exceeds California Ocean Plan standards, it does not meet the EPA nationwide effluent limitations. Since Morro Bay is not a final waiver applicant, it is being required through its EPA discharge permit to meet the more stringent requirements or face stiff financial penalities. This requirement is why Morro Bay officials are planning to construct unwanted extensive facilities in addition to the needed renovations and expansions.

In California, the discharge permits and the clean water grants are issued through the State Water Resource Control Board. Although the Board is forcing Morro Bay to plan for the additional secondary oxidation facilities, it is doing so with great reluctance and only because of pressure from EPA to not permit exceptions to the national effluent limitations. A board official stated that Morro Bay is one of the best potential community candidates for a waiver. Additionally, he said that the State no longer provides grant funding to projects like Morro Bay that already meet the California Ocean Plan.

The ongoing EPA waiver program unnecessarily discouraged Morro Bay from applying

When the Congress authorized secondary treatment waivers in 1977, Morro Bay officials were anxious to apply. However, the 1978 draft regulations discouraged Morro Bay from pursuing a final waiver because they required extensive biological data which Morro Bay had neither the expertise nor the money needed to gather. In addition, Morro Bay's outfall did not meet EPA's requirements, and no guidelines existed for gathering data at a future outfall site. Finally, Morro Bay officials were unable to determine whether the operational savings with a waiver would offset the increased monitoring costs.

Despite these discouragements, Morro Bay officials filed a preliminary waiver application on the chance that the final regulations would be less restrictive. When the final regulations were published in June 1979, they were less restrictive and permitted thoroughly planned and studied outfall locations to be proposed by the applicant. However, the regulations allowed only 90 days for submitting a final application, and Morro Bay could not make all the required studies in the allowed time. Therefore, Morro Bay did not submit a final waiver application.

LOCAL CONSTRUCTION FUNDS COULD BE SAVED IN AVALON, CALIFORNIA

The small island community of Avalon, California, appears to be ideally suited for a waiver and could substantially benefit from the resulting reduced O&M expenses. However, Avalon is already at the secondary treatment level, and EPA regulations, which reflect EPA's view of the intent of the waiver provision, excluded communities that were already meeting secondary treatment requirements from receiving a waiver. In Avalon, secondary treatment appears to lack environmental benefits and to have excessive O&M costs.

Avalon's treatment plant needs to be modified

The existing secondary treatment facility serves a population that ranges from 2,000 in the winter to about 8,000 during the summer tourist season. Even though the treatment plant was completed only 3 years ago (1978), we were told by Avalon's wastewater treatment facility manager that it uses an outdated and excessively costly secondary processing method. A large part of the secondary treatment operational costs is for energy to aerate the wastewater; the method used at Avalon is estimated by Avalon officials to take about twice as much electricity as the method used at other, more conventional secondary plants.

A proposed near doubling of electricity rates in Avalon and the possible need to expand plant capacity necessitates that city officials make difficult decisions about how to proceed with wastewater plant modification planning. The decisions would be much easier to make and much money could be saved if Avalon obtained a waiver. For instance, with the modifications that would be needed with a waiver, annual electricity costs (at the proposed increased rates) could decrease from an estimated $140,000 to less than $50,000. Furthermore, additional expensive secondary capacity would not have to be built.

Environmentally, Avalon is an ideal waiver prospect

According to the executive officer of the Los Angeles Regional Water Quality Control Board, Avalon is an ideal waiver candidate

because it has no industry; it is isolated from other population centers; and the ocean depths and currents near Avalon contribute to rapid effluent dispersion. Similarly, EPA region IX officials and an environmental consultant familiar with Southern California coastal marine conditions agree that Avalon appears to be exceptionally well suited for a waiver.

Despite the apparent environmental suitability of Avalon for a waiver, it could not apply because EPA regulations precluded communities already achieving secondary treatment standards from applying. This restriction, in EPA's view, is consistent with the intent of the waiver provision.

Consequently, Avalon is now faced with a need for improving and expanding its plant but may waste considerable money unless the Congress reopens the waiver application process and EPA revises its regulations and makes a new waiver decision quickly. The Avalon City Manager estimates that, without a waiver, at least $50,000 in local funds--and perhaps as much as $250,000--will probably be spent for unwanted secondary modifications that would be superfluous if Avalon subsequently becomes eligible for a waiver through legislative and EPA regulation changes.

MILLIONS OF DOLLARS COULD BE SAVED IN OTHER COMMUNITIES

The above in-depth case studies were intended to show that costly construction decisions on secondary treatment facilities for coastal communities are currently being made. Although time constraints limited our in-depth work to two communities, we believe similar construction decisions are also being made for many of the hundreds of additional waiver applicants we identified. We believe quick congressional and EPA action could limit unnecessary Federal, State, and local construction expenditures for many of these communities.

CHAPTER 6

CONCLUSIONS AND RECOMMENDATIONS

Our cost saving projections indicate that secondary treatment waivers for coastal communities could save billions of dollars. As noted in chapter 2, these cost saving estimates could be increased or decreased by considering several factors. Even though some communities may not eventually be suitable for waivers, we believe they should not be precluded from applying. Our cost saving estimates are a good indication that billions of dollars in savings are possible though reopening and extending the secondary waiver provision to all possible communities.

Communities were precluded or discouraged from applying for waivers by legislative constraints and EPA's restrictive administration of the waiver process, including not funding expensive studies required for an application. The legislation precluded communities not already having marine discharges from applying for waivers, and EPA regulations, which reflect EPA's view of the provision's intent, prohibited communities already meeting secondary treatment requirements from obtaining them. EPA's complex regulations, the time constraints imposed, and the high cost of preparing applications discouraged many of the communities we visited from taking advantage of the waiver provision. The cost of preparing applications increases as the size of the community decreases, and many community officials suggested that EPA share this cost.

Community and State water quality officials, as well as many engineering consultants, believe that EPA's administration of the waiver provision was needlessly restrictive. EPA, at the time the legislation was being considered, advised the Congress of its intent to be restrictive because of limited scientific knowledge and the potential heavy workload. Our consultant agreed that the scientific information is limited but believes that the EPA waiver process eliminated many smaller communities whose environmental impacts would be easiest to assess.

To realize the full potential construction and O&M cost savings available under the waiver legislation, the Congress should amend the legislation to provide a continuous opportunity for coastal communities to obtain waivers of secondary treatment requirements.

Because EPA currently defines best practicable wastewater treatment technology as secondary treatment, all treatment facilities must be using secondary treatment by July 1, 1983. EPA should revise this definition so that wastewater treatment facilities receiving waivers will not have to build secondary treatment plants.

EPA should require coastal communities to consider primary treatment discharges with a marine outfall as an alternative to

building a secondary treatment facility. Since marine discharge waivers may often be the most cost-effective facility alternative, we believe the cost of analyzing this alternative should be included in step 1 planning grants for coastal communities.

EPA could do more to develop a stratified waiver application process that would provide for more streamlined application and monitoring approaches for small communities and other coastal communities with limited industrial wastes. Similar approaches are already being used by EPA for Alaskan Native villages and U.S. islands and territories. EPA's region X has also suggested a stratified approach that eases the regulatory burden on small communities. Such an approach may be done either in addition to or in lieu of providing needed technical assistance to help small communities understand and comply with the waiver requirements. The problems small communities are having are similar to those noted in our May 1980 report, 1/ which stated that small communities often do not have the technical expertise needed to understand and comply with complex Federal requirements.

Finally, quick congressional and EPA action could limit millions of dollars in unnecessary Federal, State, and local construction expenditures for communities that have impending construction decisions.

RECOMMENDATION TO THE CONGRESS

We recommend that the Congress amend the Clean Water Act of 1977 to allow for a continuous secondary treatment waiver process for all coastal communities where the communities have shown that the risk of environmental damage is minimal. In particular, we believe that Congress should:

--eliminate the requirement that treatment facilities must have an existing marine outfall to qualify for a waiver,

--remove the statutory deadline for filing waiver applications and provide for a continuous waiver process, and

--indicate that the waiver provision is not intended to preclude communities already achieving secondary treatment from obtaining waivers in cases where primary treatment is both cost effective and environmentally sound.

We will assist the committees in preparing any necessary legislation, if requested.

1/"EPA Should Help Small Communities Cope With Federal Pollution Control Requirements" (CED-80-92, May 30, 1980).

RECOMMENDATIONS TO THE ADMINISTRATOR, EPA

We recommend that the Administrator, EPA, revise EPA's definition of best practicable wastewater treatment technology to allow for primary discharges into marine waters for communities that have waivers.

Also, if the Congress takes action to allow for a continuous waiver process, we recommend that the Administrator, EPA:

--Require step 1 facilities planning grant applicants for sewage treatment facilities in coastal areas to consider discharging primary wastes into marine waters as an alternative to secondary treatment.

--Revise the waiver application process to obtain a more stratified approach that differentiates between communities based on the population served, the type of waste being discharged, and the ability of the receiving water to assimilate the wastes so that simpler application procedures are used for communities that primarily have domestic wastes and little or no industrial wastes.

--Experiment with ways of providing technical help to small coastal communities so that they can apply for secondary treatment waivers.

AGENCY COMMENTS AND OUR EVALUATION

In a letter dated March 12, 1981, commenting on our draft report, EPA stated that it was in general agreement with many of our proposals. Although it believes the report contains some technical inaccuracies and unsupported assumptions, EPA said that the report has treated a number of issues related to marine outfalls in a sensible, constructive manner.

EPA is concerned that the law precludes some actions we have recommended and that our report takes positions on issues that are under litigation and may influence the litigation. Over the coming year, as it reexamines its positions on the Clean Water Act as the legislation approaches reauthorization, EPA said that it will closely review the matter of marine outfalls.

EPA's detailed comments on our report and our responses are included in appendix III.

COMMUNITIES AND STATES VISITED AS PART OF OUR REVIEW

During our review we visited and obtained views and information from 34 communities and regional sewer utilities on the east and west coasts of the United States. These were:

Alaska:

- Anchorage
- Haines
- Juneau
- Kodiak
- Sitka
- Wrangell

California:

- Avalon
- Goleta
- Los Angeles
- Los Angeles County
- Montecito
- Morro Bay
- Orange County
- Oxnard
- North San Diego County
- San Diego
- San Simeon
- Santa Barbara

Connecticut:

- Groton

Maine:

- Peaks Island

Massachusetts:

- Fall River
- Falmouth
- Gloucester
- Boston
- South Essex
- Swampscott

Oregon:

- Newport

Rhode Island:

- Narragansett
- Newport

Washington:

- Anacortes
- Bellingham
- Port Angeles
- Port Townsend
- Seattle

In the preliminary stages of our review, we visited and obtained limited information from officials of the following community and regional sewer utilities:

California:

Ventura County, Regional Sanitation District

Eureka

Pismo Beach

Monterey, Regional Water Pollution Control Agency

Santa Cruz

Washington:

Mukilteo

Friday Harbor

Coupeville

Lynnwood

POTENTIAL CONSTRUCTION AND O&M COST SAVINGS FOR COMMUNITIES VISITED DURING OUR REVIEW

Community or regional sewer utility	Present level of treatment	Population served	Present average daily flow (MGD)	Cost of Waiver Application		Estimated Cost Savings from a Waiver	
				Initial application	Annual monitoring (estimate)	Construction cost	Annual O&M cost (note a)
Final applications submitted							
California							
Los Angeles County	advanced primary	3,500,000	365	$260,000	b/$250,000	$ 97,000,000	$2,000,000
Los Angeles (City)	260 MGD cap. primary 100 MGD cap. secondary	3,300,000	360	300,000	no increase over current $1,500,000 discharge monitoring cost	95,000,000	2,000,000
San Diego (City)	advanced primary	1,360,000	128	436,000	500,000	427,000,000	6,100,000
Orange County	154 MGD primary only 50 MGD secondary 75 MGD secondary under construction	1,670,000	204	120,000	227,000	95,000,000	5,000,000
Oxnard	primary	130,000	19.5	200,000	no increase over current $120,000 dicharge monitoring cost	12,800,000	800,000
Goleta	primary	68,000	7.0	200,000	92,000	5,800,000	229,000

a/Does not consider the increase in monitoring cost required if a waiver is received.

b/Plus $600,000 capital cost.

APPENDIX II

Community or regional sewer utility	Present level of treatment	Population served	Present average daily flow (MGD)	Cost of Waiver Application: Initial application	Cost of Waiver Application: Annual monitoring (estimate)	Estimated Cost Savings from a Waiver: Construction cost	Estimated Cost Savings from a Waiver: Annual O&M cost
Final application submitted (continued)							
Washington							
Seattle, metropoliton (note c/)	primary	640,500	130.3	$1,170,000	$500,000	$140,000,000	$2,300,000
Port Angeles	primary	15,500	2.44	75,000	60-70,000	8,500,000	540,000
Anacortes	primary	9,000	1.03	50,500	65,000	12,218,000	267,000
Alaska							
Anchorage	primary	165,000	24.0	250,000	$563,000 first year, $463,000 thereafter	85,000,000	3,750,000
Sitka	none	6,000	1.8 d/	72,000	50,000	2,000,000	200,000
Kodiak	secondary	6,120	0.8	negligible e/	no estimate	-	$65,000 to $79,000
Wrangell	secondary	2,000	.39	negligible e/	140,000	-	2,000
Haines	secondary	1,350	.21	negligible e/	no estimate	-	18,000

c/Seattle METRO has one advanced secondary treatment plant for which no application was submitted. See page 41 for projected savings from a waiver for this facility.

d/Design capacity of primary plant

e/These communities submitted final waiver applications even though they already had secondary treatment and were thus ineligible for waivers. Kodiak prepared its own application using already available information. Wrangell's engineering consultant estimated the cost of preparing the application at $75,000 and the city submitted only a letter as its application. Haines' engineering consultant estimated application costs at $150,000 to $250,000 and the city submitted an incomplete application prepared from available information.

APPENDIX II

Community or regional sewer utility	Present level of treatment	Population served	Present average daily flow (MGD)	Cost of Waiver Application: Initial application	Cost of Waiver Application: Annual monitoring (estimate)	Estimated Cost Savings from a Waiver: Construction cost	Estimated Cost Savings from a Waiver: Annual O&M cost
Final applications submitted (continued)							
Massachusetts							
Boston, metropolitan	primary	2,175,000	445	$1,000,000	no estimate	$ 144,400,000	$13,800,000
South Essex, sewer district	primary	200,000	96.6 (design flow)	240,000	$150,000	-	2,000,000
Gloucester,	none	16,500	3.05	140,000	85,000	(5,900,000) f/	255,000
Swampecott,	primary	14,000	1.3 to 1.8	80,000	10,000	2,500,000	400,000
Maine							
Peaks Island	none	400	0.2 to 1.0	22,800	30,000	no estimate	no estimate
Total potential cost savings for 19 communities and utilities which submitted final applications.						$1,121,318,000	$39,726,000
Final application not submitted (note g/)							
Preliminary application only							
California							
North San Diego County	primary (full secondary under construction)	180,000	14	no estimate	50,000	$ 45,000,000 h/	$ 2,000,000
Morro Bay	secondary	10,000	1.7	no estimate	no estimate	2,000,000	100,000

f/Cost of modifying outfall more than offsets saving in cost from building a primary rather than secondary treatment plant.
g/For these communites, the initial application cost shown is the estimated cost of preparing a final waiver application.
h/This potential saving has already been lost because construction of secondary facilities is near completion.

APPENDIX II

Community or regional sewer utility	Present level of treatment	Population served	Present average daily flow (MGD)	Cost of Waiver Application: Initial application	Cost of Waiver Application: Annual monitoring (estimate)	Estimated Cost Savings from a Waiver: Construction cost	Estimated Cost Savings from a Waiver: Annual O&M cost
Preliminary application only (continued)							
Washington							
Bellingham	primary	43,000	6.44	$ 80,000	$ 94,500	$24,610,000	$ 782,000
Port Townsend	primary	4,500	.72	50,000	no estimate	1,500,000	50,000
Alaska							
Juneau	secondary	9,300	1.5	$100,000	no estimate	-	no estimate, thought to be zero
Massachusetts							
Fall River,	primary	96,000	18.0	100,000	no estimate	31,000,000	1,500,000
Rhode Island							
Newport	primary	25,000 residents plus 30,000 visitors peak season	6.0 to 8.0	100,000	$ 50,000	6,000,000	200,000
Connecticut							
Groton	secondary	10,100	.21	50,000 (estimate)	no estimate	-	no estimate

APPENDIX II

Community or regional sewer utility	Present level of treatment	Population served	Present average daily flow (MGD)	Cost of Waiver Application: Initial application	Cost of Waiver Application: Annual monitoring (estimate)	Estimated Cost Savings From a Waiver: Construction cost	Estimated Cost Savings From a Waiver: Annual O&M cost
Preliminary application not submitted							
California							
Santa Barbara	secondary	75,000	8.5	no estimate	no estimate	-	$ 400,000
Montecito	secondary	7,000	.85	no estimate	no estimate	-	no estimate
Avalon	secondary	2,000 residents plus up to 6,000 tourists	0.25 to 0.60	no estimate	no estimate	-	105,000
San Simeon	secondary	250 residents plus up to 1,500 tourists	0.8 to 0.15	no estimate	no estimate	-	no estimate
Washington							
Seattle, Metropolitan	advanced secondary	265,000	40.3	no estimate	no estimate	$83,800,000	3,700,000
Oregon							
Newport	secondary	7,000	1.59	$ 50,000	no estimate	$ 3,184,000	52,000

APPENDIX II

Community or regional sewer utility	Present level of treatment	Population served	Present average daily flow (MGD)	Cost of Waiver Application: Initial application	Cost of Waiver Application: Annual monitoring (estimate)	Estimated Cost Savings From a Waiver: Construction cost	Estimated Cost Savings From a Waiver: Annual O&M costs
Preliminary application not submitted (continued)							
Massachusetts							
Falmouth	none	2,500	.25	no estimate	no estimate	no estimate	no estimate
Rhode Island							
Narragansett	primary	2,500	.50	no estimate	no estimate	$ 1,930,000	$ 30,000
Total potential cost savings for 15 communities and utilities which did not submit final applications.						$ 199,024,000	$ $8,919,000
Total potential cost savings for 34 communities and utilities visited during our review						$1,320,342,000	$ 48,645,000

APPENDIX II

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

12 MAR 1981

OFFICE OF
PLANNING AND MANAGEMENT

Mr. Henry Eschwege, Director
Community and Economic Development Division
United States General Accounting Office
Washington, D.C. 20548

Dear Mr. Eschwege:

The Environmental Protection Agency (EPA) has reviewed the General Accounting Office (GAO) draft report entitled "Billions of Dollars Could Be Saved Through Secondary Treatment Waivers for Ocean Dischargers."

We are in general agreement with many of GAO's draft recommendations. In fact, EPA has previously taken some steps to revise its 301(h) program along the lines suggested in the draft report. For example, we have begun revising the definition of best practical wastewater treatment technology (BPWTT) for recipients of 301(h) waivers and have adopted a stratified approach to processing applications that is similar to the approach suggested in the report.

While we are in general agreement with many of GAO's draft recommendations, others are less persuasive. The draft report contains some technical inaccuracies and unsupported assumptions which lead to conclusions with which we disagree. Furthermore, EPA's legal ability to implement some of the recommendations under the current Act is questionable. Finally, the report takes positions on several issues which are pending before the United States Court of Appeals for the District of Columbia Circuit in Natural Resources Defense Council (NRDC) v. EPA, No. 79-1639 and Consolidated Case Nos. 79-1934, 79-1935, and 79-2360, issues which have been fully briefed and argued and are awaiting decision. Because of the sensitive nature of these issues and their pendency in litigation, we believe that GAO must exercise caution in expressing an opinion at this time that might influence the course of the litigation.

We do wish to emphasize, however, that despite our areas of disagreement, this report has treated a number of issues related to ocean outfall in a sensible, constructive manner.

EPA's policies in this area have been conditioned by our long-held concern that if we are to maintain momentum toward Best Practicable Wastewater Treatment Technology we should not lightly grant deviations from the secondary treatment requirements contained in Section 301 b 1 B. Over the coming year EPA will take the opportunity to reexamine its positions on the Clean Water Act as our legislation approaches reauthorization. The matter of ocean outfalls deserves serious attention as we continue to seek ways to improve efficiency and reduce costs without sacrificing environmental objectives. Your report will be of assistance to us in our policy and legislative review.

We have concentrated our review of GAO's paper on the recommendations made in the draft report. Our position on the major issues raised by the report is discussed below.

Recommendation to the Congress

That Congress amend the Clean Water Act of 1977 (CWA) to allow for a continuous Secondary Discharger Waiver process for coastal communities.

EPA Comment

The central recommendation in the report is that section 301(h) of the Clean Water Act should be amended to allow for a continuous waiver process that would enable a significant number of ocean dischargers to apply for waivers from the secondary treatment requirements. This recommendation is premised on the assumption that as many as 800 publicly owned treatment works (POTWs) could potentially qualify for secondary treatment waivers at a cost savings of as much as ten billion dollars. We believe that these numbers greatly exaggerate the number of communities that could actually benefit from secondary treatment waivers for ocean discharges and the cost savings associated with expansion of the 301(h) program.

The report does not indicate how many of the 800 communities considered actually have existing ocean outfalls and how many would have to construct an outfall, perhaps from as great a distance as one-half mile from the ocean, to qualify for a waiver. It is our understanding from discussions with GAO's auditors that perhaps as many as two-thirds of these communities would have to construct ocean outfalls. The report does not consider the high cost of construction of ocean outfalls and diffusers, the costs incurred in purchasing rights-of-way for outfalls, possible increased energy costs for pumping to overcome the lack of hydraulic gradient that may create an obstacle for ocean discharge, or the costs associated with the loss of fresh water resources.

While the report mentions some of these factors and indicates that they might affect the estimates of cost savings, the overall tone of the report creates the impression that these factors would not really change the estimates. It is our belief that these costs could easily outweigh any savings associated with granting waivers from secondary treatment where communities do not have existing ocean outfalls and that these costs should be factored into the analysis of potential cost savings associated with secondary treatment waivers.

Furthermore, the report implies without analysis that there would be no adverse environmental impacts from a less-than-secondary discharge. A determination of this type must be supported by a detailed analysis of local conditions including consideration of the nature of the receiving waters, the nature of the discharge, the nature of the marine population, and the uses of the waters. Since the report contains no such analysis, there is no support for the conclusion that there would be no adverse impacts.

It would be unwise to recommend expansion of the program for secondary treatment waivers at this time without a better analysis of the cost savings. Mechanisms are available to insure that small communities with discharges that do not have significant environmental impacts will not be required to construct secondary treatment facilities pending completion of this analysis. Under the CWA, the States are required to develop priority lists to determine the order in which communities should receive grants to construct treatment facilities. Among the factors considered in setting priorities are the environmental impacts of the discharge. Thus, grant funds need not be expended to achieve secondary treatment where the environmental impacts associated with the discharges do not, in the State's opinion, merit this level of treatment.

[GAO Comment: EPA's major contention is that considerable additional cost and environmental information should be developed before the waiver provisions of the act are reopened. EPA believes that current mechanisms are available to preclude the expenditures of Federal construction grants on projects that would not have a clear cut environmental impact.

We disagree with EPA's contention. EPA's own cost estimates indicate that billions could be saved. We have used the best information currently available to develop a range of potential savings that indicates that billions might be saved and that quick action is necessary to preclude unnecessary expenditures. We have provided numerous examples of communities that might have to build secondary treatment facilities even though a primary treatment alternative appears possible.

Although the number of communities that might qualify for waivers will most likely be considerably fewer than our high estimate of 846, we believe there will be many more than the 70 final applicants that are currently being processed by EPA. Rather than risk spending large amounts of construction funds and then finding out that these projects are not needed, we believe that EPA could quickly review and approve those discharges that are of relatively small risk to the environment. Communities with little or no toxic discharges to marine waters will often have little or no environmental impact. We have made some revisions in the report that show that the specific environmental impacts of a marine outfall should be considered.

We do not believe that mechanisms are available to ensure that small communities will not build unnecessary secondary treatment facilities. Our May 1980 report on small communities concluded that mechanisms were not available to ensure that small communities would look at all alternative waste treatment approaches, including low-cost alternatives. That report cited many questionable small community treatment plants that have been built. We again noted similar problems with apparent unnecessary sewage treatment plant construction during this review, and we talked to many small community officials that believed the waiver provisions and the regulations were developed specifically for large communities.]

Recommendation to EPA

That the Administrator, EPA, revise its definition of best practicable wastewater treatment technology (BPWTT) to allow for primary discharges into marine waters.

EPA Comments

We agree that a revision in the definition of best practical wastewater treatment technology (BPWTT) is required for waiver applicants that meet the statutory criteria and EPA regulation. We are currently preparing such a revision.

[GAO Comment: We concur.]

Recommendation to EPA

In line with Congressional action to allow for a continuous waiver process, (GAO recommends) that the Administrator require Federal construction grant applicants for sewage treatment facilities in coastal areas to consider secondary discharger waivers as an alternative to secondary treatment.

EPA Comments

The report does not contain any indication that consideration of secondary treatment waivers would, in most cases, be economically or environmentally productive, especially where grant applicants do not have existing ocean outfalls. As we noted above, where grant applicants would have to construct an ocean outfall, the costs of constructing the outfall could outweigh any savings associated with a secondary treatment waiver. Grant applicants would be free to consider waivers from secondary treatment if the waiver program were expanded, but should not be required to consider unrealistic alternatives.

[GAO Comment: Our report gave examples of communities where secondary treatment waivers would be economically possible with limited or no environmental degradation and provided significant cost saving estimates. We agree that grant applicants should not consider unreasonable alternatives, but we believe that EPA should be more aggressive in requiring coastal communities to study the cost savings potential of primary treatment with ocean outfalls.]

Recommendation to EPA

In line with Congressional action to allow for a continuous waiver process, (GAO recommends) that the Administrator provide Federal matching funds to potential waiver applicants for studying alternatives.

EPA Comments

EPA does not provide grant funds for the preparation of the National Pollutant Discharge Elimination System permit applications. Under our regulations, we may not provide grant funds to potential 301(h) applicants to prepare waiver applications. However, EPA can and does provide grant funds for analysis of alternatives to both conventional treatment technology and ocean discharges. In some cases these alternatives may prove less costly then either conventional secondary treatment or ocean discharge.

One of the most interesting ideas discussed, filtration of primary effluent, is currently being demonstrated at the University of California, Davis, by Dr. George Tchobanoglous, Professor of Civil Engineering and authority on municipal wastewater treatment processes. Pilot work on this treatment method indicates a removal capability of 85 percent suspended solids at one-tenth of the energy required for secondary treatment. Thus, technology is in the demonstration stage that offers the promise of considerable cost and energy reductions while meeting high environmental standards and reclaiming valuable fresh water resources.

[GAO Comment: Although EPA may not be able to use grant funds for National Pollutant Discharge Elimination System permit applications, we believe it should use step 1 facilities planning grant funds for analyzing the potential of marine discharges. In step 1 facilities planning, all feasible alternatives must be systematically evaluated to demonstrate that the selected alternative is cost effective. In many cases, a marine discharge waiver may be the most cost-effective facility alternative; therefore, the cost of analyzing this alternative would appear to be a logical cost of step 1 facilities planning for many coastal communities. We strongly support EPA's consideration of alternative treatment methodologies which, in some cases, may be the least costly alternative.]

Recommendation to EPA

In line with congressional action to allow for a continuous waiver proces, (GAO recommends) that the Administrator revise the waiver application process to a more stratified approach that differentiates between communities based on the population served, the type of waste being discharged, and the ability of the receiving water to assimilate the waste. Simpler application procedures should be devised for smaller communities that primarily have domestic wastes and little or no industrial wastes.

EPA Comments

The draft report suggests that EPA should simplify its application requirements for small communities, lighten their data burden, and concentrate efforts on reviewing the applications of the larger communities with significant toxic components in their discharges. EPA has developed a "small community policy" that, in effect, provides such a stratified approach to consideration of waiver applications.

In the preamble to its final regulations on 301(h) EPA indicated that small communities would not necessarily be required to furnish the same amount of data that would be required of large communities. In 44 Fed. Reg. 34785 (June 15, 1979), EPA said:

> Applicants should keep in mind, however, that the amount of data and analysis required to obtain and maintain a section 301(h) permit will very likely vary with the size of the discharge, the amount and kind of industrial waste in the effluent and the nature of the receiving waters into which the waste is discharged. Accordingly, small purely domestic POTWs discharging into open coastal waters may need less data to establish the merits of their case than that required of larger POTWs with industrial waste in their influent.

Thus, EPA's regulations already incorporate implicitly the stratified approach which GAO suggests. However, EPA has taken additional measures to reduce the data burden on the small communities.

EPA has received seventy final applications for 301(h) waivers and has divided them into two groups based upon the size of the discharge and its expected impacts. The first group consists of the thirty largest applicants, which account for ninety-six percent of the design flow of all the final applicants, and the second group consists of the forty remaining applications from the smaller communities. It is axiomatic that, all other things being equal, large discharges have potentially greater adverse impacts than smaller discharges. Thus, consideration of the applications in the first group has been given a higher priority than review of applications of the smaller communities.

These larger municipalities generally have more data to support their applications than do smaller communities. Many of these municipalities began collecting data under their discharge monitoring programs prior to the 1977 amendments to the Clean Water Act and have done extensive studies to evaluate the impacts of their discharges under less than secondary treatment. By reviewing the applications of the larger municipalities first, EPA will accumulate data and will increase its knowledge of the effects of marine discharges. This may benefit the smaller communities. EPA hopes to be able to extrapolate from the data and experience gained by reviewing the applications from the large municipalities to fill in any gaps in the information submitted by the small communities. In this way, the data burden on the small communities will be reduced. Under the small community policy, EPA has stated that it will refrain from taking enforcement action to compel 301(h) applicants to achieve secondary treatment until review of their applications is completed.

[GAO Comment: Although we support EPA's efforts for the small communities that did submit final waiver applications, our report shows that there are potentially several hundred additional smaller communities that should be able to apply for waivers and receive similar processing consideration. Our review discloses that many communities like these were discouraged from applying by EPA and need special technical assistance to understand how to apply.]

Recommendation to EPA

In line with congressional action to allow for a continuous waiver process, (GAO recommends) that the Administrator experiment with ways of providing technical help to small coastal communities so they can apply for secondary treatment waivers.

EPA Comments

The Clean Water Act precludes further applications for 301(h) waivers. However, if the Act is amended to permit additional applications, EPA could provide technical assistance to applicants for waivers. However, as we indicated previously, we do not believe that ocean discharge has been shown to be economically viable for most small coastal communities. Thus, technical assistance in the development of alternatives to ocean disposal would be more appropriate than providing technical assistance to obtain a waiver from secondary treatment requirements. This technical assistance should also be provided by the States with Federal funding assistance.

EPA has taken this approach with the eighty Alaskan Native Villages. It was determined that these communities, many of which do not even discharge to the waters of the United States, would benefit more from assistance in evaluating alternatives to conventional secondary treatment which do not involve ocean discharge. Responsibility for such assistance was delegated to the Regional Office and, under construction grant regulations implementing section 205(g) of the Clean Water Act, is further delegable to a State agency. EPA provides Federal funds to assist the States in establishing and carrying out the small community assistance programs. State agencies are closer to the problems in the small communities and are, therefore, better equipped to deal with those problems. This approach could be extended to other communities.

[GAO Comment: We support EPA's approach to providing technical assistance to the Alaskan Native villages. We would encourage EPA to expand this approach to include the many other small communities which would benefit from such assistance.]

Throughout the draft report, GAO has suggested EPA improperly refused to consider applications for waivers from POTWs that were already achieving secondary treatment; that EPA improperly limited the time to file final applications; that EPA improperly refused to consider improvements to discharges that had not been fully planned; and that EPA had improperly refused to consider applications from east coast dischargers. EPA has been sued by the Pacific Legal Foundation and several municipalities who have alleged that EPA's regulations are too stringent and who have criticized EPA for these same reasons. EPA was also sued by NRDC who alleged that EPA's regulations were unreasonably lenient and who argued, among other things, that EPA should not have considered applications from east coast dischargers. (It should be noted that EPA is considering applications from east coast dischargers.)

The case has been fully briefed and argued and is awaiting decision. GAO should recognize the sensitivity of these issues and should exercise caution in expressing opinions that might affect the course of this litigation.

[GAO Comment: Our review was directed at the shortcomings of the waiver provision and EPA's implementation from a scientific and administrative viewpoint. It was never our intention to comment on the legal propriety of EPA's actions. However, we have revised our report to remove any material or reference that might affect the pending litigation.]

In summary, the report should be amended to reflect the actions EPA has already taken with regard to BPWTT and the small communities. The report should contain a more realistic discussion of the cost savings associated with secondary treatment waivers and should include a more detailed discussion of the costs associated with construction of ocean outfalls. Finally, the report should recognize that the implementation of alternative technologies presently under development may prove to be the most cost-effective, environmentally sound and resource efficient solution to the wastewater treatment problems of many of the small communities. We believe that before a recommendation is made to Congress greatly expanding the 301(h) waiver program and encouraging commitments of resources to study and apply for secondary treatment waivers, a closer analysis is required to more accurately assess the economic viability of such a program and its environmental impacts.

The Clean Water Act will be the subject of extensive review when it comes up for reauthorization in 1982. Between now and that time, EPA, in addition to other major organizations concerned with water pollution control, will raise and debate issues related to the Act, and conduct appropriate analyses by which to arrive at responsible legislative positions. It seems to the Agency that the matter of ocean outfalls is one of these issues worthy of detailed study.

[GAO Comment: We believe EPA's actions have been adequately noted in the report and in the Agency's comments which we have incorporated into the report.

EPA has criticized our cost saving totals numerous times, claiming the costs associated with the construction of ocean outfalls could be significant. However, EPA has not, in written or oral comments, provided any examples that show that cost savings are not possible even where ocean outfall pipes are needed. We have shown several examples of possible savings and developed overall cost saving estimates from the best information EPA had available. Instead of automatically discounting the potential savings, we believe EPA should vigorously pursue the possible savings through secondary treatment waivers. We also encourage EPA to continue to explore the use of alternative technology whenever it is the most cost-effective, environmentally sound alternative. We believe the size of the possible cost savings and imminent construction decisions support the immediate reopening of the waiver legislation and modifications of the waiver regulations.]

APPENDIX III

We appreciate the opportunity to comment on the draft report prior to its issuance to Congress.

Sincerely yours,

C. William Gamse

for Roy N. Gamse
Acting Assistant Administrator
for Planning and Management

LIST OF SUGGESTED REFERENCES

During our review, we read and considered information from the following books, periodicals and other references. This information may help the reader understand the issues surrounding the secondary treatment waiver provision.

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